

WHAT IS CLAIMED IS:

1. A method for parallel compression and  
decompression of a bitstream, comprising:  
separating a bitstream into a plurality of  
5 components;  
encoding the components using a compression  
algorithm;  
constructing packets from the encoded components,  
where at least one packet is associated with each encoded  
10 component and the at least one packet comprises header  
information and encoded data;  
combining the packets into a packetized encoded  
bitstream;  
separating packets from the packetized encoded  
15 bitstream using the header information;  
decoding packets in parallel using a decompression  
algorithm to recover the encoded data;  
constructing the plurality of components from the  
recovered encoded data; and  
20 combining the plurality of components to recover the  
bitstream.

2. The method of Claim 1, wherein the bitstream is  
a digitized graphics or video frame.

3. The method of Claim 2, wherein separating the  
bitstream into a plurality of components comprises

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separating the graphics or video frame into separate lines.

4. The method of Claim 2, wherein combining the plurality of components to recover the bitstream comprises recovering the digitized graphics or video frame for display.

10 5. The method of Claim 1, wherein encoding the components using a compression algorithm comprises encoding using a lossless compression format.

15 6. The method of Claim 1, wherein decoding packets in parallel using a decompression algorithm comprises encoding using a lossless compression format.

7. The method of Claim 1, wherein constructing packets from the encoded components comprises constructing variable-length packets.

20 8. The method of Claim 7, wherein the header information of the at least one packet comprises a size, a predictor and an alignment.

25 9. The method of Claim 8, wherein decoding packets in parallel comprises distributing packets to separate decode units in order.

10. The method of Claim 1, wherein constructing  
packets from the encoded components comprises  
constructing fixed-length packets.

5 11. The method of Claim 10, wherein the header  
information of the at least one packet comprises a tag.

10 12. The method of Claim 11, wherein decoding  
packets in parallel comprises distributing packets to  
separate decode units based upon the tag.

13. A system for parallel compression and  
decompression of a bitstream, comprising:

an encoder system comprising:

5 a plurality of encode units operable to receive  
components separated from a bitstream and to encode the  
components using a compression algorithm;

10 the encode units further operable to construct  
packets from the encoded components, where at least one  
packet is associated with each encoded component and the  
at least one packet comprises header information and  
encoded data; and

15 a multiplexer coupled to the encode units, the  
multiplexer operable to combine the packets into a  
packetized encoded bitstream; and

a decoder system comprising:

20 a feeder operable to separate packets from the  
packetized encoded bitstream;

a plurality of decode queues, the feeder  
further operable to distribute the packets to the decode  
queues;

25 a plurality of decode units each associated  
with one of the decode queues, the decode units operable  
to decode packets using a decompression algorithm to  
recover the encoded data and to reconstruct the  
components; and

a demultiplexer coupled to the plurality of  
decode units the demultiplexer operable to combine the  
plurality of components to recover the bitstream.

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15. The system of Claim 14, wherein the plurality of components comprise separate lines of the digitized graphics or video frame.

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20. The system of Claim 19, wherein the header information of the at least one packet comprises a size, a predictor and an alignment.

21. The system of Claim 20, wherein the feeder distributes the packets to separate decode queues in order.

5 22. The system of Claim 20, wherein the feeder comprises:

an input queue operable to receive the packetized encoded bitstream;

a multiplexer coupled to the input queue;

a register coupled to the multiplexer;

a demultiplexer coupled to the register and to the decode queues; and

a left shift unit coupled to the register and to the multiplexer.

15 23. The system of Claim 13, wherein the encode units construct fixed-length packets.

20 24. The system of Claim 23, wherein the header information of the at least one packet comprises a tag.

25 25. The system of Claim 24, wherein the feeder distributes the packets to separate decode queues based upon the tag.

26. The system of Claim 24, wherein the feeder comprises an input queue operable to receive the packetized encoded bitstream.